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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/051,460	01/22/2002	John Fox	09850-013001	2845

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EXAMINER

SAYOC, EMMANUEL

ART UNIT	PAPER NUMBER
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3746

DATE MAILED: 02/23/2004

23

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/051,460

Applicant(s)

FOX ET AL.

Examiner

Emmanuel Sayoc

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-15,23-26,28-35,40,41,47,49-55 and 57-79 is/are pending in the application.
- 4a) Of the above claim(s) 32 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1,3-15,23-26,28,30-33,35,40,41,47,49,51-55,57 and 58 is/are allowed.
- 6) ☒ Claim(s) 17,29,34,50,59,61,62,65,67,68 and 70-79 is/are rejected.
- 7) ☒ Claim(s) 60,63,64, 66 and 69 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 20.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. This office action is in response to the amendments of 2/18/2004, paper 22. In making the below rejections and/or objections the examiner has considered and addressed each of the applicants arguments.

Specification

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. Examiner recommends. "A Metering Pump with Cylinders of Varying Working Volumes and Independently Adjustable Stroke."

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 65, and 70-77 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In line 5, the phrase "other portions of the transition arm" is indefinite.

Claims 71-77 are duplicated with conflicting claim dependence.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 17, 34, and 78 are rejected under 35 U.S.C. 102(b) as being anticipated by Lewis et al. (U.S. 5,927,560).

In Lewis et al., Figure 1, a dispensing pump is disclosed with a plurality of pistons (13, 44) housed within a non-rotating cylinder (12, 26). The first cylinder (26) has a fluid inlet (38 for cylinder 26) and a metered fluid outlet (18). Since the second cylinder (12) is a closed supply chamber of epoxy, the outlet (18) can be construed as an inlet with a suction stroke of the piston (13). The cylinders have different diameters. Since the pistons are controlled by different means, one by servomotor and the other by pneumatics, and because both pistons are capable of gradually or completely ejecting epoxy, it is inherent that each piston stroke is independently adjustable from the other.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 29, 59, 61, 62, 67, 68, and 78 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goto et al. (U.S. 5,931,645) and Forster et al. (U.S. 4,449,444).

With respect to claim 29, 59, 62, 68, and 78, in Figure 1, Goto et al. discloses an axial piston pump comprising a swash plate actuating mechanism (25), and a plurality of non-rotating piston cylinders (29, 30) arranged radially about the actuating mechanism (25), and coupled to the actuating mechanism (25). The first cylinder (7) has a working volume that differs from the working volume of the second cylinder (8). Figure 3 illustrates the two different cylinder bore diameters with the first diameter, corresponding to a set of low-pressure cylinders, and the second diameter corresponding to a set of high-pressure cylinders. The device differs from the claimed invention in that there is no explicit teaching that a central axis of the first cylinder is spaced from a central axis of the actuating mechanism a distance that differs from a spacing of a central axis of the second cylinder from the central axis of the actuating mechanism. In the case of swash plate compressors, the radial distance of the cylinder from the central axis of the swash plate implies a larger piston stroke. It is well known in the art to use a plurality of pistons at different axial distances from the central axis of the swash plate, or actuator, in order to achieve a

discharge of fluid, or a plurality of fluids at different rates or volumes. The use of a plurality of pistons simply increases the capacity of the compressor. Forster in Figure 1 teaches such a compressor where an outer group of pistons (25) is used in conjunction with an inner group of pistons (19). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Goto et al. device by incorporating inner and outer groups of piston cylinders, as taught by Forster, in order to achieve a discharge of fluid, or a plurality of fluids at different rates or volumes. The use of a plurality of pistons simply increases the capacity of the compressor. In such a combination it is inherent that central axis of the first cylinder (say an outer cylinder) is spaced from a central axis of the actuating mechanism a distance that differs from a spacing of a central axis of the second cylinder (say an inner cylinder) from the central axis of the actuating mechanism.

With respect to claims 61 and 67, having at least three cylinders is a non-patentable design choice, which is governed by the particular capacity requirement imposed on the compressor. Adjusting the number of cylinders to meet the particular capacity would have been obvious to one of ordinary skill in the art.

10. Claims 50, 64, and 79 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goto et al., as modified by Forster et al., as applied to claims 29 and 59, and in further view of Sanderson et al. WO 99/144471.

With respect to claims 50, 64 and 79, Goto et al., as modified by Forster et al., set forth a device as described above, which is substantially analogous to the claimed invention. The Goto et al., as modified by Forster et al., device differs from the claimed invention in that there is no explicit teaching of a first cylinder having a first inlet and outlet, and a second cylinder having a

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second inlet and outlet, and wherein the first inlet port is isolated from each other. Goto et al. the cylinders have a common inlet and a common outlet; this is common for compressors that pump only one working fluid. In cases where multiple fluids are pumped, at least one cylinder has a separate inlet from that of another cylinder. Sanderson et al. in Figure 7, 17, and 18 teaches such a compressor/pumping situation. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify the Goto et al., as modified by Forster et al., device by incorporating the independent inlets, as taught by Sanderson et al., in order for the compressor to intake multiple fluids on the suction strokes of the pistons.

Allowable Subject Matter

11. Claims 1, 3-15, 23-26, 28, 30-33, 35, 40, 41, 47, 49, 51-55, 57, and 58 are allowed.
12. Claims 60, 63, 64, 66, and 69, objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
13. Claims 65, and 70-77 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Response to Arguments

14. Applicant's arguments with respect to claims 1, 5-10, 15, 17, 23, 24, 26, 27, 29, 30-34 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following references are cited to further show the state of the art with respect to piston pumps.

U.S. Pat. 5,049,799 to Tsai et al.

U.S. Pat. 4,478,136 to Heiser et al.

U.S. Pat. 4,515,067 to Heyl et al.

U.S. Pat. 6,155,798 to Heiser et al.

U.S. Pat. 4,075,933 to Stephens

16. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Contact Information

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emmanuel Sayoc whose telephone number is (703) 305-0054. The examiner can normally be reached on M-F 8 A.M. - 6 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Justine Yu can be reached on (703)308-2675. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Emmanuel Sayoc
Examiner
Art Unit 3746

ECS



JUSTINE YU
SUPERVISORY PATENT EXAMINER

2/21/04